

NMCI ELECTRONIC RECORDS MANAGEMENT FOR DUMMIES

Advanced Management Program

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INTRODUCTION

Maintaining records throughout their lifecycle can be a difficult task, especially in dispersed organizations with disparate files that may need to be stored up to several decades. Governments, corporations, and other organizations all maintain repositories of documents. As the volume of information maintained by these institutions grows, so does the need for simple, flexible mechanisms for managing that information.

In accordance with the Federal Records Act, OMB Circular A-130, and Code of Federal Regulations (CFR) Title 36, Federal agencies are required to establish records management systems. Additionally, DOD Dir 5015.2, DOD Std 5015.2 and SECNAVINST 5212.5C provide further standards and policy for Electronic Records Management (ERM) systems. Historically, the Navy and Marine Corps have dedicated minimal efforts in the area. However, with advent of the Navy and Marine Corps Intranet (NMCI), the implementation of an efficient and effective ERM system has become a priority. Tools for ERM have been identified under NMCI, but there is little guidance available to address transitions and how to handle gaps between electronic records management (ERM) support and services provided through NMCI versus capabilities required for the commands.

Using Fleet and Industrial Supply Center – San Diego as a baseline, this position paper creates a decision matrix for a generic command to utilize to assist in decision-making during the NMCI transition.

BACKGROUND

ERM is a key-underpinning element in the government's modernization programs. The government has set a target for all central government organizations to be able to store and retrieve their public records electronically by 2004 to ensure that they are able to meet the demands of working in an electronic environment. Electronic records will need to be organized into cognate groups for access, retrieval, management, and eventual disposal, in which a complete group of records that relate to the same business activity, case, or theme are maintained. In doing so, the context of an individual record and narrative of a sequence of records are preserved.

The United States Government defines records as any “ books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United State Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the informational value of data in them.”



Meeting stringent regulatory standards, tracking documents through their lifecycles, merging paper and electronic records media and creating audit trails is becoming an increasingly complex activity that requires the integration of workflow, collaborative services and e-mail into a records management strategy. The Department of the Navy (DON) is using NMCI to enable them to implement ERM in accordance with aforementioned regulations.

In response to the impact of continuing advances in information technology (IT) on military requirements, the DON developed NMCI to standardize IT services and technology to allow the military services to quickly and securely share knowledge and information. NMCI allows the Navy and Marine Corps to procure IT services, through a “seat management” contract. The long-term service contract, which was awarded to Electronic Data Systems (EDS), provides and manages all IT capabilities, including infrastructure, for the military. The military is then charged per “seat” for the service throughout the life of the contract, where a “seat” is considered to be a workstation or personal computer (PC), with all of the supported applications, a help-desk infrastructure, training, and accounts required for using NMCI. The cost and type of applications and support is dependent on the requirements of the work being performed at that seat. For example, the “Blue Seat”, which is the basic seat, runs all commercial off-the-shelf applications, and is intended for use by the vast majority of the work force. The “Red Seat” is the high-end option and has a more powerful operating system and is intended for users with specific needs. There are also approximately seven other options, as well as, various upgrades. In addition to the applications provided under NMCI, the military will also provide legacy software to EDS to incorporate into the service provided to the user. However, the legacy software must meet specific criteria before it is allowed on the system. Legacy software not meeting those criteria will need to be either removed from service or upgraded. Among some of the legacy systems will be those applications that may affect efforts in ERM implementation.

The DON required EDS to provide for the “retention of electronic information files consistent with the applicable DOD and DON policy” as part of the basic service for all NMCI seats. TRIM by TOWER Software was selected as the ERM application to be provided through NMCI. TRIM provides a single product that provides capability for both document and records management and interfaces with leading database management systems such as Oracle and SQL Server. It provides personnel with a tool to create, retrieve, track, store, and manage vast amounts of electronic information. But TRIM comes with a cost. Every seat is required to be licensed, installed, and a minimal amount of training performed. There are also storage space requirements that will affect any ERM effort. The business process mapping, or integration, is not included in the basic NMCI seat cost. These functions can be performed by EDS or under another contract. Trim also requires some middleware software to interface with raw documents and Trim Context software that will be used to archive.



ENVIRONMENT

The current environment for records management at a typical Navy command can be characterized as fragmented and decentralized. Commands manage a vast array of paper and electronic records covering the full spectrum of administrative tasks associated with operating a large business:

- The Administrative Department controls the preparation, routing and storage of all formal correspondence. Such documents include command policy statements, internal operating instructions, letters that are sent to external parties and commands, and other such documents that are signed by the Commanding Officer or his appointed representatives.
- The Human Resource Office keeps personnel files, training records and certificates, and standard forms related to all official personnel actions.
- The Legal Department maintains original signed documentation relating to military justice cases, claims against the government and general legal aid actions.
- The Comptroller manages budget and financial data in both database and spreadsheet formats.
- The Public Works Department keeps environmental and engineering data related to real estate, facility and transportation management, much of it in graphic form.

In addition to this variety of documents, and the differences in handling that result, there is a huge variation in the formats of documents that are prepared, sent, received and stored. Commands must be able to manage such things as:

- Paper forms in standardized formats prescribed by higher headquarters
- Handwritten log books that document official transactions
- Hard copy documents that arrive at the command
- Electronic documents that are generated in word processing, spreadsheet, database or presentation formats
- Maps, photographs and drawings in engineering software formats

Further complicating this landscape is the requirement to handle a small percentage of documents as classified material.

While most Navy commands manage their official records at the individual office or department level, resulting in a highly variable records management system, there are some governing references for managing Navy records. Navy directives such as SECNAVINST 5210.8C, Department of the Navy Records Management Program; SECNAVINST 5216.5D, Navy Correspondence Manual; SECNAVINST 5215.1C, Directives Issuance System; SECNAVINST 5210.11D, Standard Subject Identification Codes; and SECNAVINST 5212.5C, Records Disposition, provide some order to the chaos.



With these directives as guidelines many commands have begun efforts on their own to reduce the number of manual documents they process and store. Using shared drives on computer networks, command-wide intranets, and other electronic tools these activities have made much headway in the fight against paper. One particular problem that has surfaced during these efforts is the need to manage documents on which a signature is required to authenticate the document (such as most legal records). As noted before, however, these attempts to “go paperless” are fragmented in their approach and are inconsistent across the Navy.

PROPOSAL

Benchmark the NMCI transition at FISC San Diego to identify the gap analysis regarding the ERM implementation process to include data mapping and measures of effectiveness. The guidance can be used as a tool for other Navy and Marine Corps Commanders going through the process. In addition, FISC San Diego can benchmark the process for the other five FISC organizations to capture specific information from legacy systems and all applicable operational and fiscal constraints.

IMPLEMENTATION STRATEGY

The implementation strategy is primarily driven by the time constraints of NMCI implementation and the unknown gaps of Electronic Records Management that will be unique to each command. Compounding this dilemma is the long-term nature of the budgeting cycle that must be used to possibly fund additional requirements to satisfactorily meet NMCI and ERM standards while still maintaining data and records required by the command mission. Since this paper addresses the unknown deficiencies and gaps that may arise during NMCI implementation, implementation strategy focuses on operational costs as they affect mission impact using data mapping decision making as a method to identify potential problems as early as possible as a tool to mitigate risk.

Mission Impact

Fiscal resources are a constraint that could significantly affect command mission execution. Once the electronic record deficiencies and/or coverage gaps are identified, timely resolution may be required to minimize mission impact. Data from legacy systems that is not accessible by TRIM software as well as data from legacy systems that do not comply with NMCI standards will need to be analyzed, quantified and incorporated into middleware solutions, off-line data mining or third party commercially-supported systems. All these scenarios will require an indeterminate level of hardware, software or services support – some available under NMCI for additional fees and some only available through third party commercial support. The additional funding will require fiscal resources likely not programmed or planned for, thereby resulting in inability to access data, which may impact mission achievement or mission efficiency. Given that Naval commands have unique legacy systems and associated data requirements, funding requirements will be determined during NMCI implementation.



As NMCI implementation occurs, similar commands (i.e. FISCs) may benefit from using a lead command to benchmark the data mapping process and determine fiscal requirements to address electronic records deficiencies and gaps.

Risk Mitigation

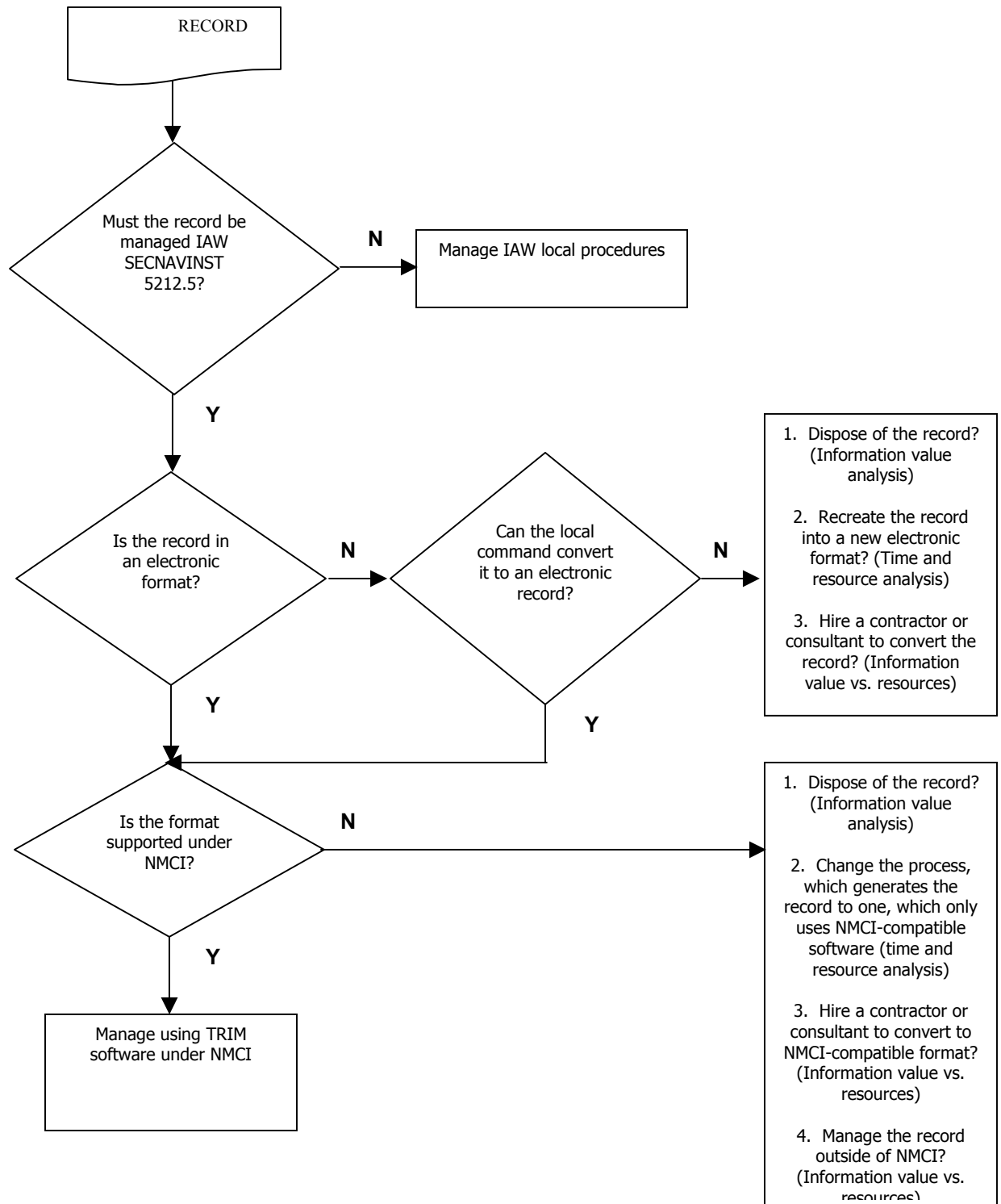
Mapping out the NMCI implementation process for each command will be required to identify unique data requirements, including the level which data is able to be converted to the NMCI electronic records protocol. Early assessment will be key to identify policy and procedure impact. In many cases, impact will be compounded for legacy systems that support automation used by many other commands. In addition, older legacy systems that are not in compliance with NMCI standards and legacy systems that are used afloat will represent additional challenges and should be identified early in the decision mapping process. Factors to consider include:

- Motive – What are the critical business issues driving the process?
- Model – Which reference model(s) represent the best maps for the organization?
- Method – How quickly and effectively can the data be identified and mapped?
- Managing Change – What factors impact the effectiveness of changing the data processes?
- Measures – What are the critical/non-critical measures of effectiveness?

Figure 1 provides proposed flowchart for a record management process. The process can be used to assist the thought process that each command will have to complete as ERM is implemented. All electronic records that cannot be processed in accordance with NMCI/Trim software will fall into the following categories.

- Reestablish data using Trim
 - Time considerations
 - Cost considerations
- Implement middleware software solution (time and cost factors)
 - Legacy system capability
 - Time considerations
 - Cost considerations
- Maintain Data in current form
 - Operational considerations
 - Policy/ Regulation compliance



Records Management Process Flow (Figure 1)

Several methodological issues exist:

- Policy: Duplication of effort and documents
 - Is record a duplication of higher-level authority record, or another department or agency?
 - Hard to determine, may require some level of coordination. Could be expensive. Higher authority issue comes into play with Instructions. For example, FISC San Diego requires a one-page reference to a higher-level directive that covers a specific topic rather than reinventing what has already been done.
- Cost: Staff hours to make this determination. Coordination with other departments. Known map to location of source document if it's already there.
- Volume: Assessing the number of documents is critical to the cost level survey.
- Workflow: Navy wants this software system to streamline workflow as well as store documents. Workflow process needs to be evaluated, changed as required, then automated. Automating poor processes will exasperate the effort.

RECOMMENDATION

With an aggressive NMCI implementation schedule, commands may determine that additional costs and time delays may have significant operational impact. These implementation variables must be identified as early in the process as possible and use of a data mapping process as identified in this paper can help cut through the myriad of guidance, expedite ERM conversions and identify operational and fiscal constraints.

Appendices A and B provide supporting information for benefits and methodology. Appendix C addresses specific analysis and overview of FISC San Diego issues.

We recommend that FISC San Diego implement this guide as a benchmark for other FISC commands. After implementation of NMCI/TRIM has been completed, FISC San Diego should develop a complete Lessons Learned package to supplement this guide for use by the other FISCs.



Appendix A - ERM/EDM Benefits Bearing Point, Inc

Proposal for showing identified unorganized record types (Data) and their ERM/EDM work process flow leading to a Knowledge Management solution.

Appendix B – Bearing Point Methodology Bearing Point, Inc

Proposal addressing a six step Change Management flow chart with sub processes.

Appendix C – ERM Appendix and EDM Issues for Fleet and Industrial Supply Center-San Diego (FISC San Diego)

Point paper is an overview, analysis and summary of current issues identified by FISC San Diego for consideration in their implementation of ERM/EDM.

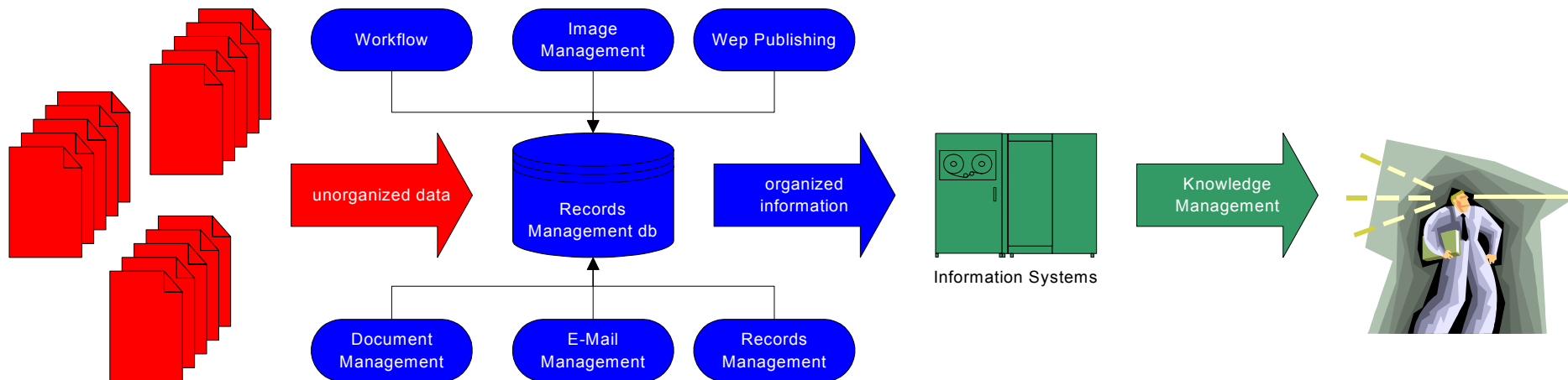


ERM/EDM Benefits

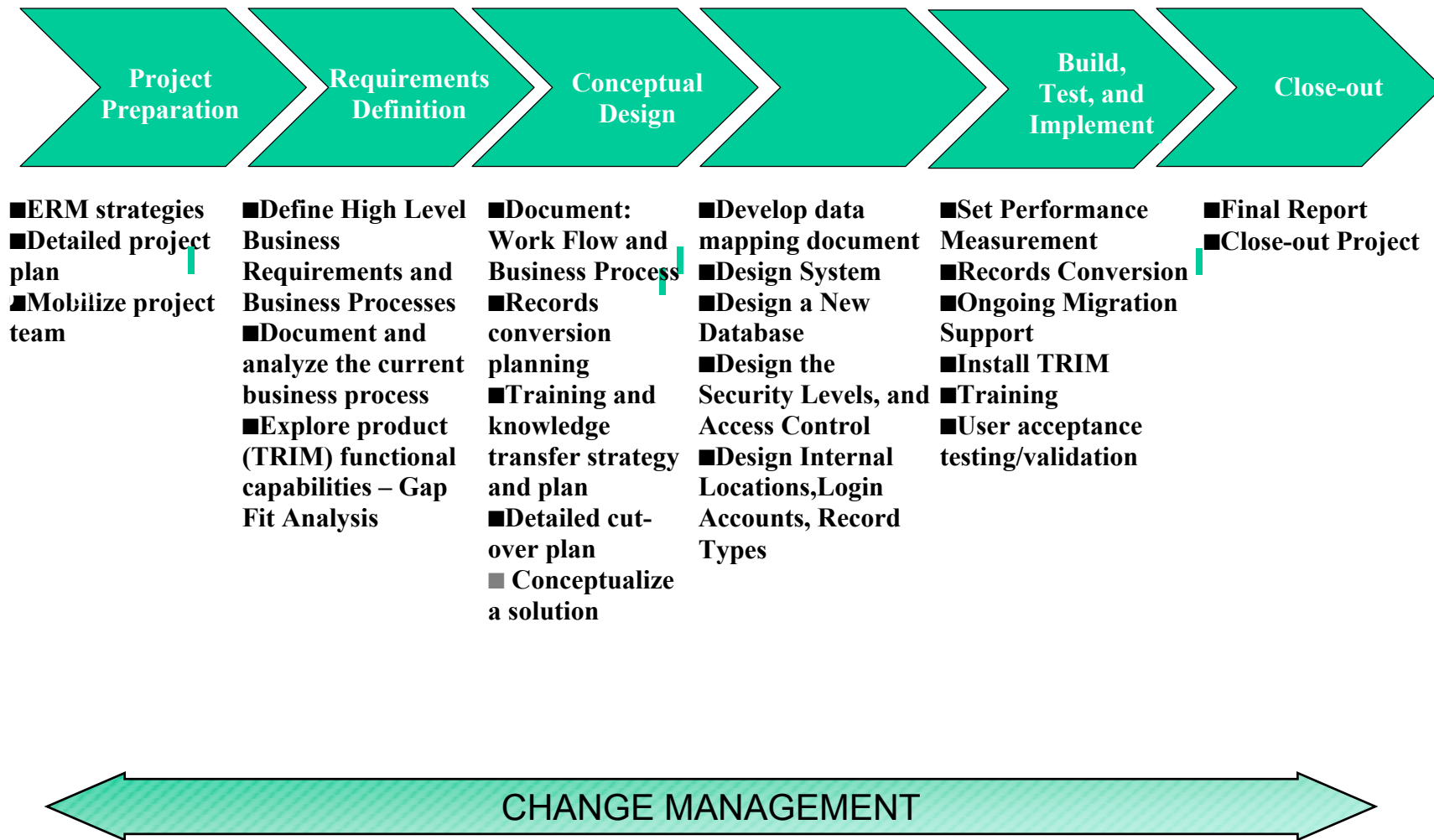
UNORGANIZED RECORD TYPES (DATA)

Military Personnel Records
Telecommunications Records
Operations and Readiness Records
Financial Management Records
Ships Design and Material Records
Logistics Records
Aeronautical and Astronautically Material Record
General Administration and Management Records

General Material Records
Civilian Personnel Records
Ordnance Material Records
Medicine and Dentistry Records
Facilities and Activities Ashore
Records of Armed Conflict
Decommissioned Vessels' Records



BearingPoint Methodology



ERM AND EDM ISSUES FOR FISC SAN DIEGO

INTRODUCTION

The Fleet and Industrial Supply Center, San Diego (FISC SD) is setting the stage for implementation of two critical interrelated knowledge management systems: Navy-Marine Corps Initiative (NMCI) and a Navy system-wide electronic records management (ERM) system. Both these systems will impact FISC SD operations from bottom to top and, depending upon planning, can impact efficiency either positively or negatively.

For both systems the point of interface is at the local user level, thus impacting daily operations. The NMCI contract requires that electronic records management software be installed on every seat (desktop). Software chosen jointly by the Navy and the NMCI contractor EDS is TRIM, a multi-modular system for capturing, tracking and archiving records developed by Tower Systems, an Australian company.

Two issues are salient: 1) This is said to be the largest system of its kind every undertaken and 2) ERM systems are normally used for archiving of records, not document and process management as planned.

“The system will eventually maintain all of the Navy’s records, both electronic and paper...As part of the effort, officials plan to integrate the records management, data management and workflow processes....Navy officials are considering using the TRIM software as the standard for managing those three process.” Steve Vetter, director of strategic planning for EDS. [2]

Although this is considered an NMCI system, TRIM will reside on a server owned and maintained by the Command. It is understood, however, that storage space is at a premium so efficiency in design is pivotal to success. No guidelines have been provided to date on how to interface these systems. These are at present Command-level decisions. Local implementation and decisions will, therefore, have a Navy wide impact.

THIS DISCUSSION

The DON CIO has established guidelines for implementing an ERM system. The process involves six steps, but the details are left to each Command:

- establishing a records manager project team;
- performing requirements definition;
- performing a business case analysis;
- developing strategy;
- designing the system;
- implementing an electronic records management system.

Contractors such as KPMG and EDS have concentrated on higher-level system concerns. This discussion will concentrate on steps 2 and 3 from the departmental and end user viewpoint as the basis for a local system. Issues include:

- I. User survey: Structured end user input as a critical building block.
- II. Critical questions: Migration of workflow from SOP to ERM
- III. A sensible taxonomy: Saving and retrieving records that makes sense to users.
- IV. Information priorities: Ephemera vs. mission critical.
- V. Document formats: ERM vs. EDM

I. User survey: Structured end user input as a critical building block.

All subsequent sections of this document are based on the assumption that the end user can and must provide information to be used in designing and implementing the new system. The starting point is in systematically gathering the necessary information in a consistent and usable form. Step 1 is to develop a survey (assessment) instrument to be used with each user, with as much face-to-face interaction as possible, much like a marketing survey questionnaire.

Marketing as well as system design is one of the goals of the survey. Users will have valuable inputs about their daily ops that are invisible even to local supervisors. They will know system glitches of legacy systems, and have suggestions as to how processes can be improved. The buy-in of having helped to create the new system will help with implementation.

A survey instrument with structured questions and several open-ended options is ideal. Information can then be quantified more readily once it is gathered. The survey is intended to elicit the SOP, no matter how simple it is for all work processes and documents that a given user engages.

It is important to learn the following:

- What work processes are you responsible for? Do you have an SOP for each? (If not, this will need to be developed as an “as is” and “to be” in the next step.)
- Preferred software used on a regular basis
- Types of documents you create, including paper docs.
- How frequently do you access, update your documents?
- Do you route documents to others in your department?
- Does your work require that you get signoffs by others locally or at higher levels?
- Do you use the Internet in your work?
- What kind of metrics are you required to provide? How frequently?
- Recordkeeping strategies: How do you keep track of things? What kind of folders do you use?
- Do you use a legacy system, e.g. PD2, for a significant part of your work?

Other questions will arise, depending on the business unit.

II. CRITICAL QUESTIONS: MIGRATION OF WORKFLOW FROM SOP TO ERM

After the user survey, the next level of input is the departmental business case analysis. This involves collection of standard data with attention to work processes, metrics, interface with outside units, and document management. It is the ideal time to migrate antiquated paper or inefficient processes into a system driven by databases and online forms. Some of the critical questions that are worth asking include the following:

1. SOP for all business unit processes.
2. Documents and data generated to support the process.
 - a) Document type at present, e.g. paper, MSOffice, other software.
 - b) Type of data
 - c) Software used to generate document, version
3. Document organization
 - a) User document and folder title conventions, if any
 - b) Number of forms or documents produced
 - c) Frequency of access
 - d) Storage/archiving system
5. Tracking and metrics
 - a) Is the process measured as part of departmental metrics?
 - b) Do documents, electronic or otherwise, record a process that contributes to departmental metrics?
 - c) Is a tracking system in place?
 - d) Can electronic forms in NMCI-supported software be generated to expedite this process?
 - e) Can a database be designed in an NMCI-supported software to interface with existing electronic forms or future paper-to-electronic forms?
 - f) Can such a database be developed to interface with the Command meta-system for analyzing metrics?
6. Interface of process and documents with internal and external process systems, i.e. stakeholders
 - a) Department internal: What is the flow of information and/or documents within the department?
 - b) Command internal: What is the flow of information and/or documents within the Command?
 - c) External: What is the flow of information and/or documents within the Command?
7. Technical interface
 - a) Do the user's process and documents interface with non-NMCI systems, e.g. "legacy" systems?
 - b) Does this require proprietary formatting that would limit electronic access?

III: A SENSIBLE TAXONOMY: INFORMATION CLASSIFICATION

How will the end user find his or her way to work on the information highway? Will a search engine have to be invoked to bring up a simple document created last week? How

will information be tagged to allow for future access? The present system varies by individual. Three potential solutions have been discussed thus far: 1) Folder structures, 2) file naming conventions, and a 3) structured keyword system.

Higher-level classification

Commands will set their own business rules for classification system and business processes. One option is to use the SSIC system (SECNAVINST 5210.11D) as a keyword convention or higher level of organization since it is already used to classify documents. At the highest level, this could form a backbone for organization.

Downside: At the lowest operational level this could also create an even worse bottleneck since the system involves hundreds of numbers grouped under dozens of headings.

User-designed taxonomy

A system has been successfully implemented by the Marine Corps University Research Center (MCURC) designed a taxonomy using a combination of experience, management and end user input. This also helped force redesign of work processes. [5]

Downside: This requires a real knowledge of business processes and consensus among users and departments as to viable categories that would be mutually useful.

One requirement is that the end user is required to enter metadata along with the record or associate the record with metadata. Decisions take time and time is money. In a cloistered archival environment, this may not present a problem; in a vital fast-paced business environment it could be costly.

Shortcuts

An IT professional at FISC SD suggested the use of Profiles, departmental and user, to create a roadmap to blocks of records. This would function invisibly behind the scenes based on the user's login. Admin staffs who administer records confirm that individual departments tend to work within broad SSIC categories. SSIC could feasibly be used as part of the profile.

- A standardized folder system may simplify the retrieval process, rather than a burdensome and cumbersome convention.
- Pulldown menus for file folders set to the departmental profile. This is preferable to a classification decision every time a file is named.

Keywords

The metadata mentioned by the MCURC archivist could also be embedded in a structured keyword sequence, beginning with a SSIC, also with pulldown menus from which to select keywords, to also include some open-ended fields.

Filenaming conventions

Filenames are the biggest problem of all. To code for origin, content, date, department, classification would result in a cumbersome number string that will impede rather than facilitate access. Some documents are relatively easy to classify, such as instructions or directives since these already conform to a system. Day to day business docs are a thornier problem.

The bottom line: Like the archivist said, “The rules were set up for both retrieval and entering ease, we want to keep things simple in all cases.”

IV: Information priorities: Ephemera vs. mission critical

According to Tower literature, each record requires a minimum of 6.5K of storage space. Additional space is costly so what should be stored on the server and what should not? NARA has run into electronic reality: It simply does not have the resources to collect, store and manage the 36million messages and documents the government generates every year. The solution is to ask individual agencies to focus on storing the most important records first. [6]

This should not only be operationalized at a Command level, but also on a departmental level. Below are some ideas.

DOCUMENT TYPE	SERVER STORAGE	SERVER ARCHIVE	LOCAL DRIVE	LOCAL ARCHIVE
Shared databases	X	X	X	X
Mission critical documents	X	X	X	X
Documents used by other units	X	X		
Documents that feed into metrics	X	X		
Departmental correspondence	X	X		
Personal correspondence			X	X
Ephemera			X	
Project documents, position papers, proposals, etc.	X	X		
Personnel documents	X	X		
Regular access documents				

Ephemera are documents of short-term value, i.e. a checklist, memo about a time-sensitive event. These should never have to make it to the server. Local archiving should follow the most efficient route, i.e. CD storage, zip disk, etc.

V: DOCUMENT FORMATS: ERM VS. EDM

The TRIM system has been successfully applied worldwide for archiving but has not been widely used for document or process management. This could be a problem or an opportunity. ERM is the term used most widely to describe archiving systems. EDM or EDMS are terms more frequently used to manage documents associated with workflow.

“If TRIM is going to be installed under NMCI and used for records management purposes, it is not a pilot. If it is going to be installed for document management, correspondence management or non-records management purposes, it may very well be a pilot.” Charley Barth, team leader for DON CIO records and document management. [2]

One critical area is the format in which documents will be stored. TRIM is said to interface effectively with the MSOffice suite of programs, so one could assume that docs could be stored in native file format; however, this presents a potential problem for archiving and future access. What happens when the older version of Word or PowerPoint is no longer supported?

Templates and text files

IT archivists recommend a system of standardized templates for various types of documents, e.g. letters, financial documents, etc. in ASCII formatted text with XML markup tags that would interface with style sheets at the meta level. This works well for archives, but not necessarily for documents used on a daily basis that require custom formatting, e.g. spreadsheets.

“The challenge is coming up with a format for an electronic record, such as a word processing document, that can be maintained once the original technology is no longer available...NARA officials believe part of the solution is to store information in basic templates, which provide a standardized way of describing the context and presentation of a record.

“Although NARA will establish the basic template, agency officials plan to ask different user communities to help refine the template for particular kinds of records...Over the past several years, various communities of interest have developed special XML schemas for particular uses, such as e-commerce transactions and legal information.” Dan Jansen a project manager for the Electronic Records Archive (ERA) [4]

The efficiency that is touted indicates that a document will be filed in only one location; however, it seems like more than one format may require more than one location.

SYSTEM QUESTIONS

What is the relationship between the ERM (TRIM) and NMCI system?

The NMCI contract requires that EDS provide desktop records management software to all users, i.e. installed with each seat.

Is TRIM considered a “legacy” system or a part of the EDS-maintained NMCI system?

Yes, ERM will be a legacy system maintained by FISC SD Command. TRIM will reside on an NT server purchased and maintained by FISC. The server has already been purchased.

What is the relationship for the average user between what is on the local hard drive and the EDS NMCI and ERM TRIM servers?

To be defined. Apparently at Lemoore

What is the relationship of the TRIM and NMCI servers?

According to Code 030, there are no NMCI servers.

DEFINITION OF TERMS

DMS: Document Management System

EDMS: Electronic Document Management System

ERM: Electronic Records Management

EDM: Electronic Document Management

NARA: National Archives and Records Administration.

RDBMS: Relational database management system, e.g. MSAccess

Record. The term "record" is used in the realm of archives and records management[1], and the same term is used in the realm of information technology. The two usages have overlapping but dissimilar meanings. In this report, the term record is used in the meaning found within the world of archives and records management. This meaning of record is the definition found in statutes, whether federal or state. For example, the definition of the term under the Federal Records Act is as follows:

A record consists of information, regardless of medium, detailing the transaction of business. Records include all books, papers, maps, photographs, machine-readable materials, and other documentary materials, regardless of physical form or characteristics, made or received by an Agency of the United States Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that Agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the value of data in the record. (44 U.S.C. 3301, reference [bb]) [See, for example,]

In order to distinguish between records in the archival/records management sense and records in the information technology sense, the guidelines refer to "official records" (archival/records management) and "computer records" (information technology). Not all computer records are official records, and not all official records are computer records. This point seems so elementary as to approach triteness, yet the confusion between the

two senses of the term continually clouded site visits and discussions involving both webmasters and records officers during the course of the project.

SSIC: DON Standard Subject Identification Codes

TRIM: ERM product developed by Tower Software of Sydney, Australia. System purchased by the Navy for ERM.

Transfer to Record keeping System. A record keeping system is defined as "a set of policies and procedures for organizing and identifying [official] files or documents to speed their retrieval, use, and disposition" (NARA 1993). State and federal government record keeping systems include the important condition that the system must comply with applicable laws and regulations for official records management and archives. (DOD 5015.2-STD, the Department of Defense standard referred to below.)

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